ABSTRACT

The present invention springs from the discovery that mild acids could be utilized to shear undesired metals away from desired precious metals that have been plated onto circuit board runners or contacts. This shearing action occurs at a high rate when metal scrap segments are immersed in mild acid and excited by application of an electromagnetic field at specific frequencies and power levels. These frequencies and power levels are based on the end metal desired and the metals contained in the scrap and the acid utilized. When mild acid saturated with copper sulfate and loaded with scrap metals is subjected to an electromagnetic field at the appropriate frequency and power levels copper and nickel molecules are sheared rapidly and absorbed into solution, leaving only the desired metal, such as gold, in a 99.5 % pure flake which can be skimmed off the surface of the solution or filtered from the solution. The captured metal flake is then rinsed in water and denatured alcohol, compressed, melted and poured into bars or nuggets for further use or sale.